

Significant Articles 2009

Hospital Medicine

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(Borrowed liberally from talk by Brad
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Case

- 67 year old woman with a h/o HTN presents with syncope.
- What tests should you order?

Which diagnostic test is the highest yield and most cost-effective

- Head CT
- Tele for 24 h
- EKG
- Troponin I
- TTE
- Orthostatic VS
- Tilt-table tests

Diagnostic Tests in Syncope

- Mendu ML, et al, Arch Intern Med July 2009: 169:1299
- Retrospective cohort study 2100 pts. All >65 yo. Studies ordered were noted and if tests made diagnosis or changed management.
- 53% had diagnosis for syncope
- Most common causes vasovagal, orthostasis

Results

Tests	Frequency obtained %	Affected diagnosis %	Affected management %
EKG	99	7	7
Tele	95	11	12
Cardiac enzymes	95	2	1
Echo	39	4	4
Head CT	63	2	2
EEG	8	1	1
Orthostatic VS	38	18	25

Results

Tests	Frequency obtained %	Cost per + test -\$
EKG	99	1020
Telemetry	95	710
Troponin I	95	4813
Echo	39	6272
Head CT	63	24881
EEG	8	32973
Orthostatic VS	38	17

Diagnostic Tests in Syncope

- Orthostatic VS the best test
- EKG, tele, and troponin high-yield, low cost

Case

- This patient has a normal EKG and troponin and is admitted to tele for observation
- She develops rapid atrial fib the next day, to 150

For rate control in absence of CHF and normal renal function?

- IV amio
- IV dig
- IV dilt
- IV metop
- Cardiovert

Rate Control in afib with RVR

- Siu C, et al. Crit care Med July 2009; 37(7):2174
- Open-label RCT 150 patients who presented to ER with symptomatic uncomplicated afib
- Compared 3 groups: IV dilt, IV dig, IV amio.
- Outcomes were rate <90 and symptom relief

Results

- IV dilt achieved earlier rate control, more rate control, and shorter LOS. Also better symptom relief

Case

- A 68 year old nursing home resident with S. aureus osteo. He has new swelling in his right arm. He has a diffusely swollen R arm but no redness or joint swelling. He has a PICC in that arm

What is the risk of thromboembolism in patients with PICC

- .5%
- 5%
- 10%
- 30%
- Never happens

VTE with PICC

- Lobo et al, J Hosp Med 2009; 4:417-422
- Retrospective chart review of adult general medicine inpatients in a single university-affiliated community hospital
- 954 PICCS; 777 patients
- Symptomatic patients only screened, mean age 61, 60% women

Results

- 3.5% developed UE DVT
- 1% developed PE
- Rate: 5.0 VTE/1000 PICC days
- So 4.5% had a VTE complication.
- H/o VTE (OR 10.8) and non-central PICC location (OR 2.6) associated with VTE
- Treat UE VTE like LE VTE

Case

- At the time of discharge the nurse asks if the patient should get a pneumovax before he goes?
- Is there benefit in nursing home patients?

Pneumovax in nursing homes

- Maruyama et al. BMJ 2010; 340:c1004
- Double blind RCT of 1006 Japanese nursing home residents comparing 23-valent pneumovax vs. placebo showed 4.5% decreased risk of pneumococcal pneumonia (NNT 22)
- The risk of death from pneumococcal disease declined 35%

Case

- 60 yo man with COPD, HTN and chronic back pain is admitted for increasing cough, chest pain, and dyspnea. He describes his pain as “ripping” to his back.
- You think this is COPD but you are wondering if this could be PE or dissection.

What tests can you order to rule out PE and dissection

- MRI of chest
- US of the LE
- D-dimer
- CT scan of the chest
- TTE

Ddimer in Dissection

- Suzuki T et al, Circulation 2009; 119:2702
- The question is can D-dimer aid in evaluation of dissection?
- Prospective multi-center 222 suspected of dissection, all D-dimer+
- Patients <24 hours of symptoms
- 87 patients with dissection

Results

- Test characteristic for D-dimer < 500
- If above true rules out dissection 95% of the time, but poor specificity, 61%
- If D-dimer > 1600 it showed a positive likelihood ratio of 12.8.

Case

- His D-dimer is slightly elevated so he gets a CT of the chest which is negative except for a new 1 cm pulmonary nodule in the R lobe

Prevalence of clinically relevant incidental findings on CT for PE

- Rare <1%
- Less than 5%
- About 10%
- Around 25%

Incidental CT scan

- Hall, et al. Arch Intern Med 2009; 169(2):1961
- Retrospective cross-sectional, 589 CTA's ordered by ED, reviewed for final read for PE and non-PE findings

Results

Findings	N	%
PE	55	9
Alternative Diagnosis	195	33
Incidental=f/u	141	24
Incidental no f/u	615	**

Incidental CT scan findings

- Incidental findings common for CTA. Many require f/u; new nodules/LAD

Case

- His creatinine went from .9-1.3 over a 36 hour period
- Do you need to worry about this increase in creatinine?

AKI and outcomes

- Barrantes et al. Mayo Clin Proc, 2009; 84(5); 410-416
- Retrospective cohort and case-control study of 735 adult patients with AKI (increase in serum creatinine $>.3$ within 48 hours)
- 5089 controls at a single community hospital

AKI Results

- Patients with AKI were;
- 8X more likely to die in the hospital
- 5X more likely to have LOS>7 days
- 5X more likely to require critical care

Case

- You meet the patient's wife and before she shakes your hand she asks you if you have washed your hands!

Have you washed your hands?

- Sure as you hit the alcohol dispenser on the wall
- Definitely before and after each patient contact
- Of course as you wipe your lunch on your patients
- Have you?

Improving hand hygiene

- Saint et al. Qual Saf Health Care 2009; 18: 429
- Can a multitmodal intervention improve healthcare worker hand hygiene?
- Hand hygiene intervention 5 hosp units; multitmodal intervention over 2 weeks; before/after observations

Results

findings	Pre	Post	P
overall	32%	47%	<.001
Nurses	34%	48%	<.001
doctors	28%	47%	<.001

Results

- MD champion identified, engaged, motivated by baseline
- Cardiology unit MDs; pre: 6.4%, post 3.8%
- MD champion key, rates still poor

Case

- 60 yo woman with DM and CKD found altered in her apartment
- When she is in the ER her temp is 38.5C and she is somnolent with nuchal rigidity
- You suspect bacterial meningitis and perform LP, start empiric antibiotics and admit her to the hospital

Should you also start steroids?

- Depends on the g stain; if GPC yes
- Yes in this patient
- Only in children but not in adults

Steroids in acute bacterial meningitis

- Assiri, et al. Mayo Clinic Proc 2009; 84(5) 403-409
- What is the effect of adjuvant steroids on short-term mortality and neurologic sequelae in acute bacterial meningitis?
- Systematic review/meta-analysis, placebo-controlled, RCTs. 4 trials; 1261 adult and adolescent patients

Results

	Pooled RR of death (95% CI)
Overall	.81
Developed	.50
Low HIV prevalence	.66

Results

- In developed countries: NNT to prevent 1 death 12.5. NNT to prevent 1 death from S pneumo is 4.8
- NNT to prevent 1 neuro sequelae in developed countries is 11
- Doses used dexamethasone .6 mg/kg/day 4 X a day

Case

- The patient worsens and a code blue is called. The son and daughter are outside the room and they would like to come into the room during the resuscitation.
- Should you allow that?

Do you allow family to be present during resuscitation?

- Yes, it is important to show them that everything is being done and so they can be there for him
- No, too traumatic for them
- Yes, my hospital has a policy allowing families to be present
- No, having the family might impair the performance of the code team

Family presence at codes

- Fernandez R, et al Crit Care Med. June 2009; 37; 1956
- RCT 2nd and 3rd year EM residents, simulated codes, worker and family member present: 3 groups, no family witness, a nonobstructive “quiet” witness, a witness with an “overt grief reaction”

Results

Critical actions	No witness	quiet	Overt grief
Time to 1st comp	1.64	2.76	2.12
Time to 1st shock	1.67	1.77	2.57
# of shocks	6	6.5	4
Time to death	12.95	12.96	12.86

Chest Compressions

- A prospective study of 509 out-of-hospital cardiac arrests (VF or VT) examined % time given chest compressions and outcomes
- Increased % time patients were given chest compressions increased the odds of surviving to hospital discharge (11% increase for each 10% increase in time spent)

Summary

- Definitely:
 - 1) use dilt instead of dig or amio for rate control in uncomplicated afib
 - 2) give pneumovax to eligible nursing home patients
 - 3) appreciate how common important incidental findings are in CT scans for PE
 - 4) prioritize chest compressions in resuscitation

Summary

- Consider:
 - 1) limiting the eval of syncope in patients >65 to history, exam, orthostatics, tele, EKG, troponin I
 - 2) the risk of VTE with PICC is 5%
 - 3) using D-Dimer to R/O aortic dissection
 - 4) small increases in creatinine in the hospital may be important
 - 5) how hard it is to get providers to wash their hands
 - 6) the consequences of allowing family members to be present at resuscitations